2004-05
EDITION

Creating a water garden retreat

Tetra Pond®

Your Water Garden Experts

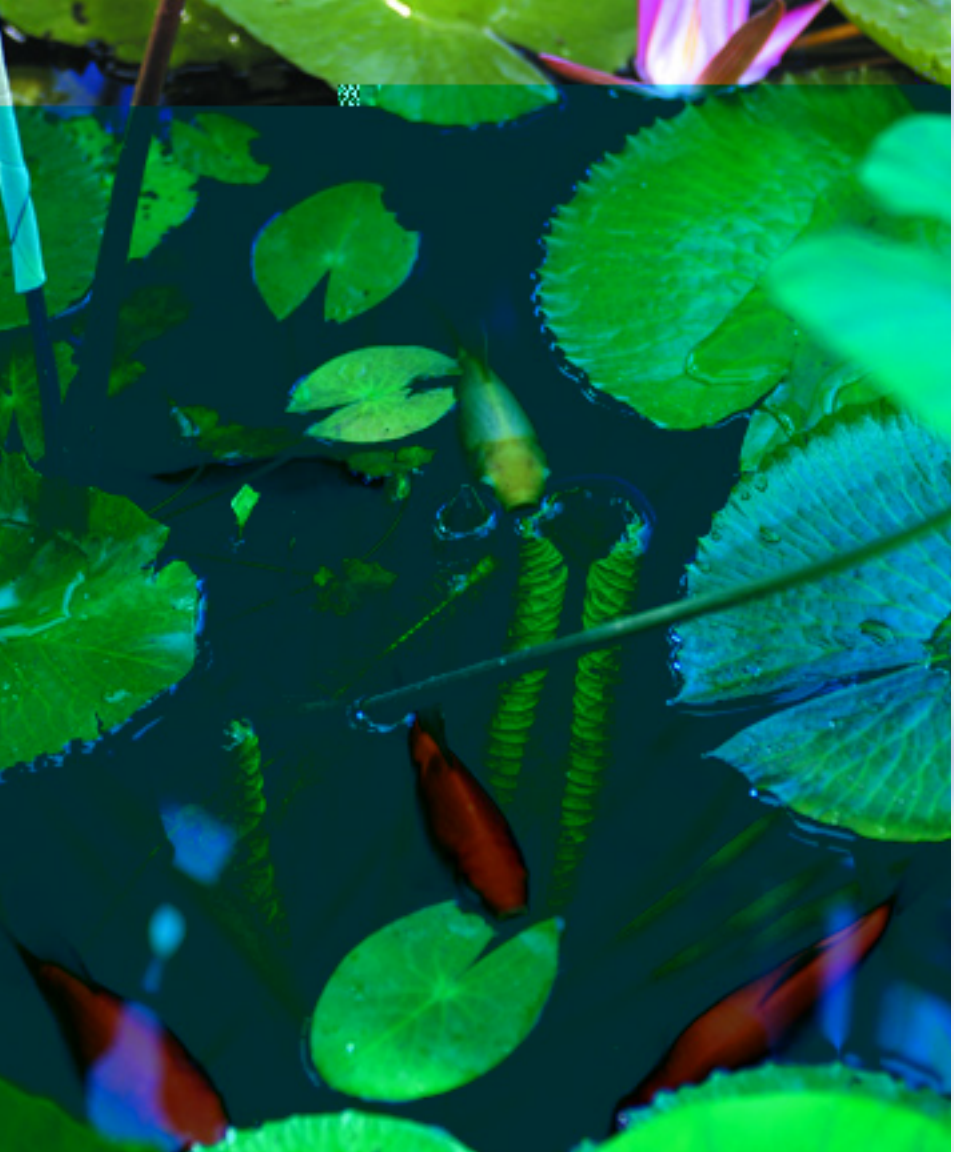


table of contents

Planning and Design....4

Pond Construction....6

Waterfall Construction....10

Pond Systems....12
Matching the Right Equipment

Pumps....16

Healthy Clear Water....22
Filtration and Green Water Solutions

Feeding Fish....26

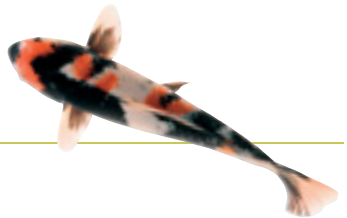
Keeping Fish....28

Aquatic Plant Care....29

Educational Resources....30

Frequently Asked Questions....31

The calming sound of moving water. The natural beauty of flowering water lilies and lush aquatic plants. The graceful motion of Koi and goldfish. In a world that moves faster every day, it is no surprise that an increasing number of people are turning to water gardening to create a peaceful retreat in their backyard. Building your own water garden is simpler than you may expect. All you need is the right equipment and a little expert advice.



where to begin

The most important step in your journey to a beautiful water garden is your dream. Your unique vision of your pond will determine everything else that follows. This is the time to decide whether you want your water garden to include Koi or goldfish, aquatic plants or features like fountains, streams or waterfalls. Planning as much as possible in the beginning will save time and energy later on.

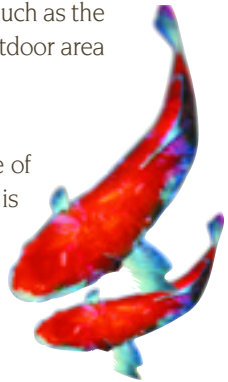
Choosing a location

Locate it where you will enjoy it

Your first consideration in choosing a location for your pond is your own enjoyment. You may want to place it where you can view it from rooms where you spend a lot of time, such as the kitchen or family room. Another good choice is near your deck, patio or other outdoor area where you relax and entertain.

Importance of sunlight

It is essential for healthy plant life, but too much can lead to an overabundance of algae and unattractive green water. Typically, the best location for a water garden is one that receives five to six hours of sunlight a day.



And while trees can provide a beautiful environment and help shade a pond from too much direct sunlight, roots make digging difficult and leaves can fall into the pond, clogging filters and robbing the water of oxygen as they decompose.

designing your pond

Size of your pond

Once you have decided on a location, you can design the size and shape of your pond. As a general rule, bigger is better. Make your pond at least 30 square feet with a minimum depth of 18 inches. Ponds of this size will be more ecologically balanced, retain more stable temperatures and provide greater movement for fish.

Reflecting your personal tastes and surroundings

Formal gardens are complemented by geometrically shaped ponds with bricks or flat paving stones around the perimeter. For informal gardens, ponds can have more natural, free-form shapes bordered with stones of various sizes and shapes. Avoid tight curves or intricate shapes. These waste lining material, reduce water capacity and create stagnant areas where solid wastes accumulate.

Rectangle

Oval

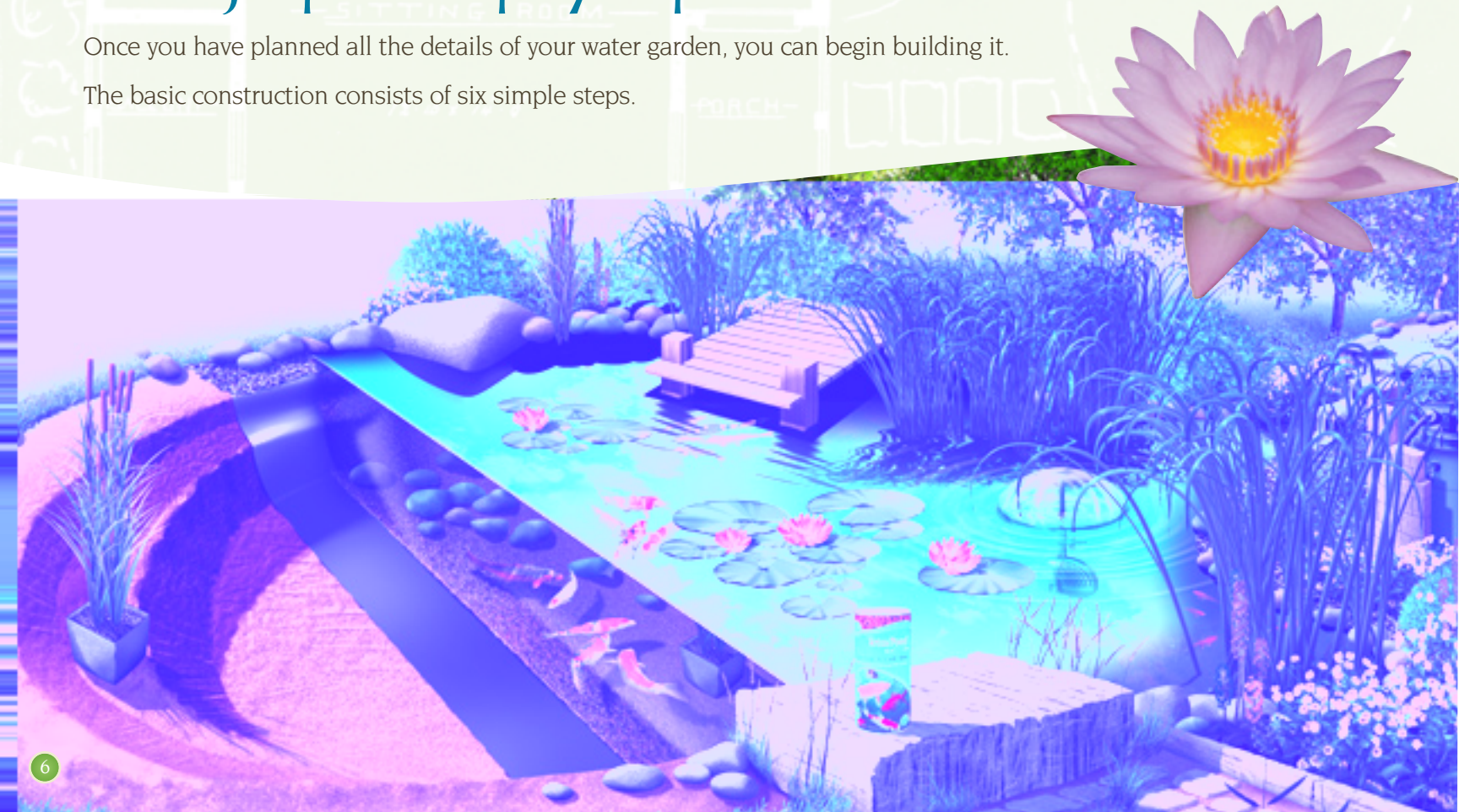
Kidney

Natural

building a pond, step by step

Once you have planned all the details of your water garden, you can begin building it.

The basic construction consists of six simple steps.



Layout

Use a heavy garden hose or rope to outline the edges of the pond. Place short stakes at one-foot intervals to retain the shape.

Excavation

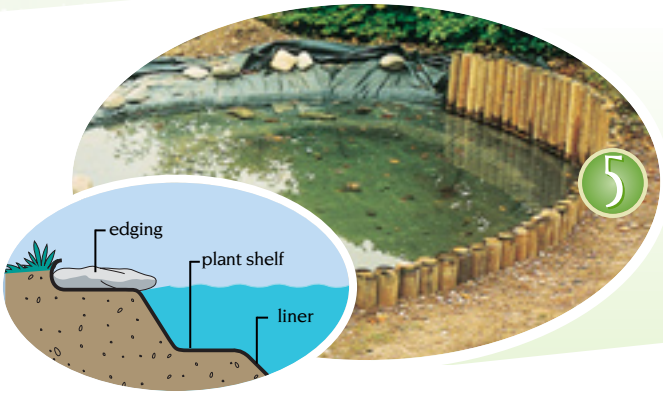
Excavate the pond area. You may choose to create 2 or 3 tiers in your pond, the top one for rock edging and the others for plant shelves. Deep areas should be between 18 and 40 inches deep, depending on the climate, and shallow areas between 4 and 12 inches. In most parts of the U.S., 18 to 24 inches is generally a good depth. To keep the surface of your pond level, stake out strings lengthwise and widthwise and use a line level.

Padding and underlayment

Carefully remove all sharp rocks and protruding roots from the surface. Line the entire pond with 1 to 2 1/2 inches of sand, then positioning your TetraPond Underliner to protect the main liner from root and rock punctures. Carpet padding and newspaper are also underling options, but they will not provide the same degree of protection.

Liner installation

Unfold the liner on your lawn or other flat surface nearby. With at least two people on either side of the liner, pick it up and walk to slide it over the pond. Let the liner drop into the pond, making sure it extends evenly, well beyond the perimeter. Minimize the number of small folds by pulling or tucking them into large folds. Hold the liner in place with bricks or rocks and fill the pond with water. This will cause the liner to conform to the shape of the pond.



Rock borders

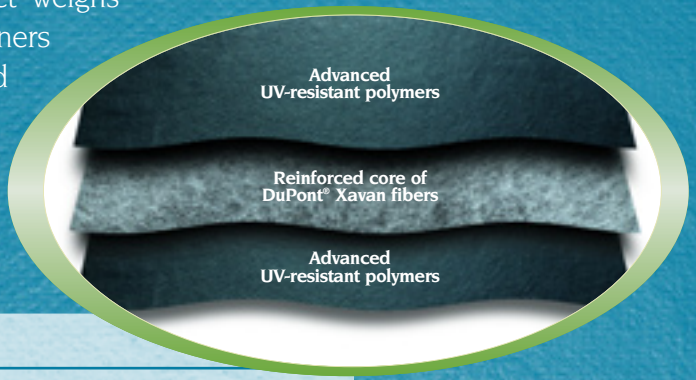
If you choose, build a rock border around the edges, allowing rocks to overlap the water by one to two inches. To achieve a natural look without the liner showing, make sure the water meets the rock edging. To do this, extend the liner up behind the edging (see illustration) and backfill with soil or rocks to create a barrier that holds the liner upright and prevents both pond drainage and garden runoff. Only after the pond is completely filled and rock edging is in place, trim excess liner.

Equipment installation and finishing touches

Install a TetraPond filtration system, water garden pump and waterfall. Treat pond water with Tetra AquaSafe® Pond Formula (see page 26). Add plants, then wait several days and add fish a few at a time over the course of 30 days to ensure that your pond and filter are biologically ready to support aquatic life. Landscape to suite your taste and environment.

flexible pond liners

The latest development in flexible pond liners is a technologically advanced TetraPond liner reinforced with Xavan® non-woven fibers by DuPont®. This superior liner is tear-resistant and much stronger than conventional liners, yet weighs about one-third as much. TetraPond liners carry a 25-year limited guarantee and are available in a variety of popular pre-cut sizes or in bulk for custom sizing. EPDM liner made from butyl rubber is also an option.



Calculating liner size

Liner length = Pond length + 2 x Depth + 2 ft. overlap

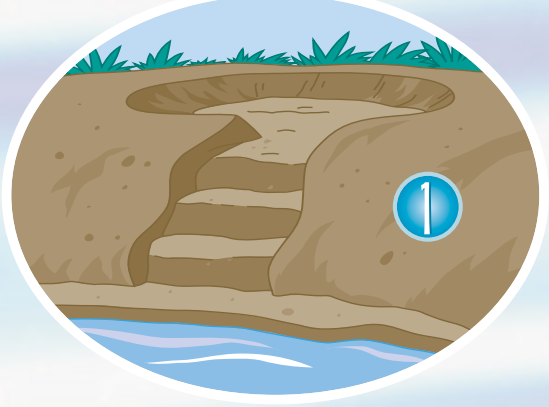
Liner width = Pond width + 2 x Depth + 2 ft. overlap

	For finished pond size			Use liner size
Example	**3' x 7'**	18" deep	350 gal. (approx)	8' x 12'
	5' x 7'	18" deep	550 gal. (approx)	10' x 12'
	15' x 19'	18" deep	3500 gal. (approx)	20' x 24'

Xavan® is a registered trademark of DuPont®

adding a waterfall

The sight and sound of moving water add an extra dimension to your garden and enhance the appeal of your pond. Moving water helps oxygenate the pond, and waterfalls also provide a biofiltration benefit as helpful bacteria become embedded in the stones. Building a waterfall isn't difficult if you follow these simple steps.



Excavating header pool and tiers

Begin by laying out the site for the waterfall. The header pool can be located at the top of a natural slope, or you can use the soil excavated from the main pond as the foundation of the waterfall. Mark the path and the tiers with a pair of stakes at each step. Starting at the base of the mound, excavate the waterfall using the stakes as guides. Make each step roughly horizontal and the sides roughly vertical. If the soil is not holding its shape, allow it to settle or use a tamper. At the top of the waterfall, create a header pool to house the inlet pipe and form the top tier.

installing an efficient system

In order to keep your pond clear and healthy, you will need to install a system incorporating a pump, filter and a UV clarifier. Depending on the size of your pond and the type of water features you want to incorporate, there a number of different combinations that will fit your needs. The following section makes it easy to build your own backyard oasis with examples of complete systems, information on getting started and handy reference charts.

here are some examples:

1200 gallon pond system

DynaMag 750 Pump – flow @ 2 ft. high approx. 650 gph
UV1 Clarifier – Max. flow 900 gph
PF1 Gravity Flow BioFilter – Max. flow 500 gph
Use 1" inside diameter tubing to connect all components.

Flow control valve

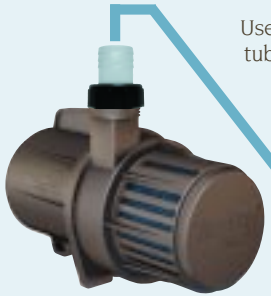
About 150 gallons are diverted to fountain or waterfall

Restrict flow to UV clarifier and filter to about 500 gph

DynaMag 750

1800 gallon pond system

DynaTec 2250 Pump – flow @ 2 ft. high approx. 2000 gph
UV1 Clarifier – Max. flow 900 gph
PF2 Gravity Flow BioFilter – Max. flow 750 gph
1 1/4" and 1' inside diameter tubing to connect these components.



Use 1 1/4" inside diameter tubing to connect these components

T-Fitting

DynaTec 2250

2500 gallon pond system

OFX4000 Pump – flow @ 2 ft. high approx. 3500 gph
PUV2500 Pressure Filter With Built-In UV Clarifier – Max. flow 1250 gph
1 1/2" inside diameter tubing to connect these components.

Use 1 1/2" ID tubing

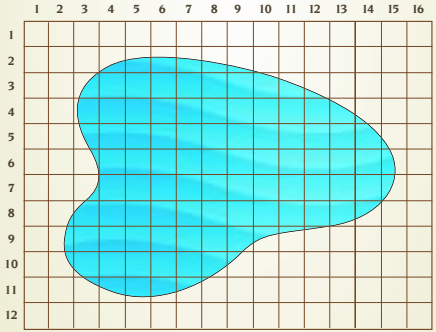
T-Fitting

OFX4000

to figure area and volume

This grid may be used to determine the surface square footage and the volume which you will need to determine the size of your pump.

1. Measure the length and width of your pond, and sketch the approximate shape on the grid. Each square represents 1 square foot.
2. Total the squares for your square footage.
3. Multiply square footage by the average depth (ft.) This is your cubic footage.
4. Multiply cubic footage by 7.5. The result is your liquid volume in gallons.



The pond sketched into the grid is approximately 105 sq. ft with an average depth of 1 1/2'. It will contain 1182 gallons of water.

guide to building your own system

1. **How many gallons your pond holds** (*see "to figure area and volume" on page* 13).
2. **Choose the proper size pump – three considerations:**
   a. The 50% circulation rule – choose a pump that circulates a minimum of 50% of the pond volume per hour.
   b. Determine the height and width of desired waterfall spillover (*see page* 17).
   c. Choose a pump large enough to power your filter and UV clarifier (*see page* 17).
3. **Measuring flow -** An easy way to check flow volume: simply time how long it takes (total seconds) to fill a 5-gallon bucket. Divide 3,600 by the total seconds, then multiply result by 5. Example: 3600 (*seconds in an hour*) ÷ 15 seconds (*fill time*) x 5 gallons (*bucket size*) = 1200 gph (*flow rate*)
4. **Choose biofilter type and size -** Gravity Flow or Pressure Filter (*see "keeping your pond clean" on page* 22 *for more information on filter types*).
5. **Choose the proper size UV clarifier** (*see chart on page* 15).
6. **Choose the proper hose diameter -** Use the largest inside diameter that equipment can accommodate to connect equipment. Equipment inlet/outlet sizes are listed right on the packaging. If you are in the pre-planning stages, visit our Web site at www.tetra-fish.com for a complete listing of all TetraPond equipment specifications and capacities.
7. **Determine hose length -** An easy way to determine length of tubing is to use a string to consecutively link the equipment (pump, filter, clarifier, etc.), follow the terrain and make the most direct path. Measure string for length. Always purchase an extra foot or two.
8. **Determine if flow control valve, T-fittings and/or reducers will be needed** (*see "tying it all together" at right*).

tying it all together

These essential items are readily available at your local hardware store or water garden center.

Tubing

Flexible, kink-resistant tubing available in a variety of diameters to connect pump, biofilters, UV clarifiers, waterfalls and other water features.

Hose clamps

to secure your hose connections.

Teflon tape

To ensure a good seal on threaded connections.

T-fitting

To divert water flow to a waterfall or piece of equipment.

Reducer fitting

To connect hoses of different inside diameters.

Flow control valve

Adjustable valve used to increase or reduce water flow volume.

matching the right equipment

Use this handy reference chart to help you match the proper pump to the proper filter/UV clarifier for your pond. Although your pond application may vary, this will give you the guidelines and ranges to help you make the combination that's right for you. If you are matching a pump with a flow greater than the flow of the other components, a control valve is recommended to reduce flow, or use in conjunction with a T-fitting to divert excess flow to a water feature.

		RECOMMENDED PUMPS							
GRAVITY FILTER & UV CLARIFIER COMBINATIONS	**Recommended Pond Range**	**DynaMag 500** 500 gph max	**DynaMag 750** 750 gph max	**DynaTec 1100** 1100 gph max	**DynaTec 1500** 1500 gph max	**DynaTec 2250** 2250 gph max	**OFX2000** 2000 gph max	**OFX3000** 3000 gph max	**OFX4000** 3870 gph max
PF1 Filter & UV mini Clarifier Filter: max flow 500 gph UV Max. flow 330 gph	**100-660**								
PF1 Filter & UV1 Clarifier Filter: max flow 500 gph UV Max flow 900 gph	**660-1200**								
PF2 Filter & UV1 Clarifier Filter: max flow 750 gph UV Max. flow 900 gph	**1200-1800**								
PF3 Filter & UV2 Clarifier Filter: max flow 1000 gph UV Max. flow 2200 gph	**1800-2400**								
PRESSURE FILTER COMBINATIONS									
PRF1500 Filter or PUV1500 *Filter: Max flow 750 gph	**300-1500**								
PRF2500 Filter or PUV2500 *Filter: Max flow 1250 gph	**1500-2500**								
PRF4000 Filter or PUV4000 *Filter: Max flow 2000 gph	**2500-4000**								

*Expect approximately 40% flow loss through the pressure filter.

No flow control valve needed

Use the DynaMag flow control valve with these combinations

Use an auxiliary flow control with these combinations

selecting the proper pump

The importance of the right pump

The pump is one of the most important equipment purchases you will make for your water garden. It is the heart of the pond, circulating water to the filter and keeping the ecosystem healthy. Because it runs constantly, it must be both dependable and energy efficient.

Choosing the correct pump size

The pump size you choose (*pumping capacity in gallons per hour or gph*) is based on the size of your pond, your filter capacity (*see pages* 20-22) and your desired waterfall's size and appearance. Using the 50% circulation rule, the pump should circulate the entire volume of the pond at least every two hours. So, if you have a 1000-gallon pond, you need a pump that will discharge back to the pond at least 500 gph. When in doubt, purchase a slightly more powerful pump. You can always slow or divert the flow of a pump, but you can't increase it (*To determine pond volume refer to page* 11).

pumps for waterfalls

Water flow and head pressure.

To choose the proper pump for a waterfall, you first need to understand pump head height. This is the water pressure generated by a pump. The maximum pumping height is the height a pump will raise water straight up resulting in zero gph of water flow at the top. As the height of any pump discharge increases, the flow will decrease.

Calculating your pump size.

To calculate the pump size for your waterfall, decide the width of the spillover you want and determine the vertical distance from the waterfall to the pond surface. Every inch of spillover width requires about 100 gph of water flow at the height of the waterfall.

See flow charts on packaging for water volume flow specifications at different pumping heights.

	DynaMag 250	DynaMag 500	DynaMag 750
Max. flow gallons/hr.	250 gph	500 gph	750 gph
Pond size	Up to 500 gal.	Up to 1000 gal.	Up to 1500 gal.
Maximum pumping height	3.6 ft.	7.8 ft.	9.5 ft.
Energy consumption	15 watts	50 watts	75 watts
Energy cost per month*	$ .90	$ 3.00	$ 4.50

	DynaTec 1100	DynaTec 1500	DynaTec 2250
Max. flow gallons/hr.	1100 gph	1500 gph	2250 gph
Pond size	Up to 2200 gal.	Up to 3000 gal.	Up to 4500 gal.
Maximum pumping height	14 ft.	17 ft.	16.5 ft.
Energy consumption	106 watts	138 watts	190 watts
Energy cost per month*	$ 6.36	$ 8.28	$ 11.40

	OFX 2000	OFX 3000	OFX 4000
Max. flow gallons/hr.	2000 gph	3000 gph	3870 gph
Pond size	Up to 4000 gal.	Up to 6000 gal.	Up to 8000 gal.
Maximum pumping height	6.8 ft.	12.8 ft.	17.8 ft.
Energy consumption	115 watts	240 watts	260 watts
Energy cost per month*	$ 6.90	$ 14.40	$ 15.60

*Based on average U.S.A. Residential rate of $0.0833 Kilowatt hour rate. Source: Energy Information Administration (Nov.2002). Local rates may vary.

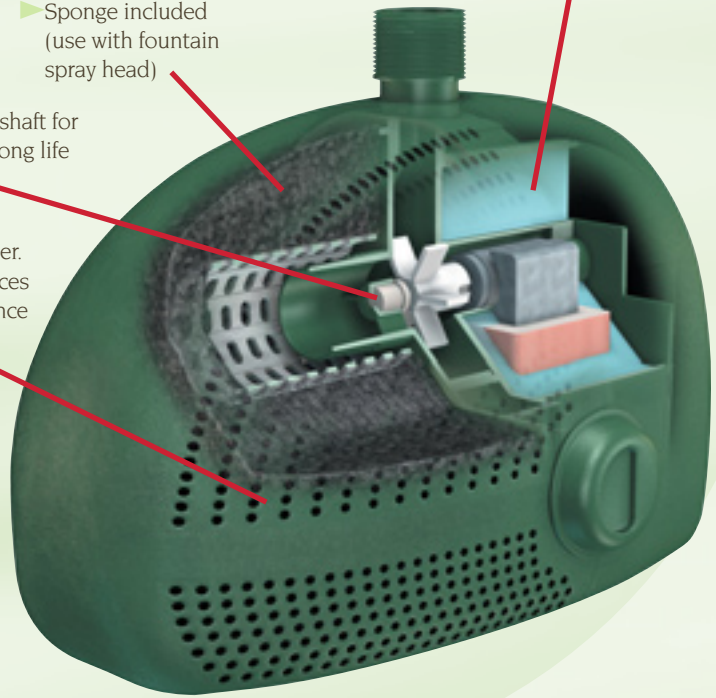
DynaMag™ series

Reliable magnetic drive technology

Like all TetraPond pumps, the DynaMag series was designed by water garden experts from the ground up. They are a dependable, economical choice for the small to mid-sized pond. All DynaMag pumps are protected by a two-year warranty and come complete with fountain assembly, including an adjustable stem, flow diverter outlet, and spray and bell pattern heads.

DynaMag 250
DynaMag 500
DynaMag 750

2-Year Limited Warranty



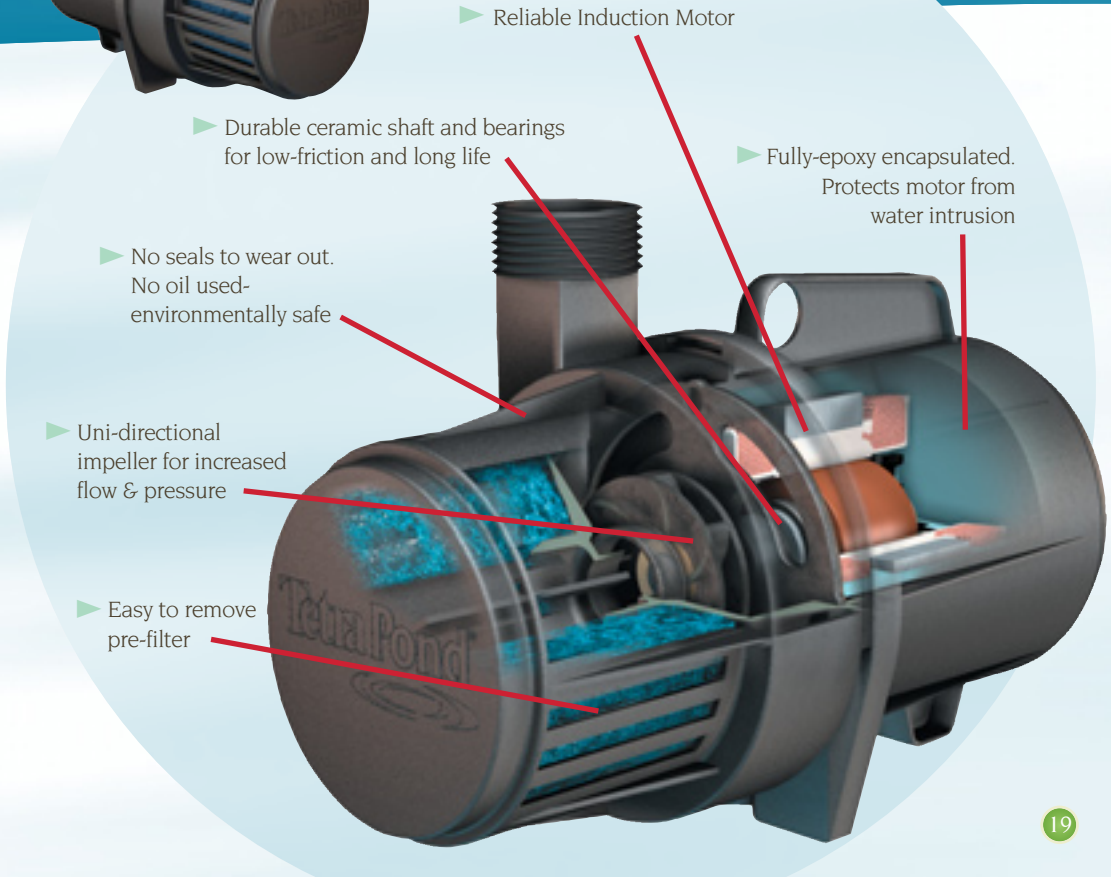
DynaTec™ series

High performance pumps engineered for continuous use

3-Year Limited Warranty

TetraPond DynaTec models are high performance pumps ideal for larger ponds, as well as waterfalls, streams and large fountains. Engineered with proven European asynchronous impeller technology, DynaTec pumps provide superior head height and flow. All DynaTec pumps are warranted for three years.

DynaTec 1100
DynaTec 1500
DynaTec 2250



The OFX pump's innovative impeller design sends debris directly to your pond's external filter.

OFX series

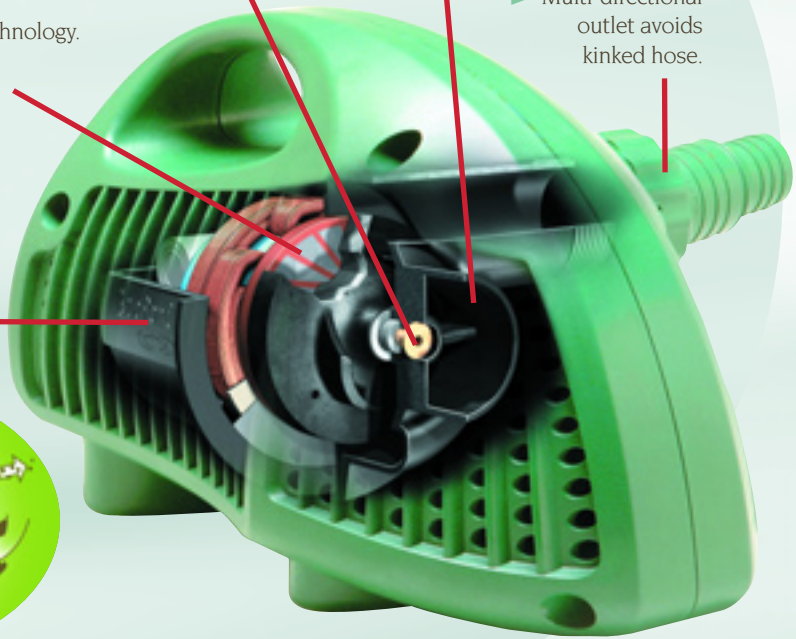
3-Year Limited Warranty

The debris-handling pumps

TetraPond's OFX Open-Flow Debris Handling Pump is a revolutionary new concept in pumping. Most pumps contain a pre-filter to trap debris. The OFX models instead have an innovative cage design with large holes throughout the surface that allow debris up to 3/8 inch in diameter to pass through the pump.

The debris goes to the specialized impeller, which forces it to the pond's external filter where it is easily removed. This serves to clean the pond and reduce pump maintenance.

OFX pumps are powerful enough for waterfalls or streams, yet they are extremely energy efficient and economical to operate.



OFX 2000 • OFX 3000 • OFX 4000

GP-125

125 gph Statuary & Fountain Pump

Ideal for pond-side statuary and fountains

- Use 1/4", 3/8", 1/2" ID tubing (adapters included)
- 2-Year limited warranty
- Reliable magnetic drive technology
- Energy efficient
- 115V / 60 Hz. UL & cUL approved
- Pre-filter sponges

	GP-125
Max. flow gallons/hr.	125 gph
Maximum pumping height	34 in.
Energy consumption	8 watts
Energy cost per month*	$ .48

*Based on average U.S.A. Residential rate of $0.0833 Kilowatt hour rate. Source: Energy Information Administration (Nov.2002). Local rates may vary.

Winter Island Pond De-Icer

- Maintains a small ice-free opening in pond surface, allowing harmful gases to escape.
- Provides lifesaving drinking water for birds.
- Measures 16 1/2" wide and 2" high.
- Works effectively at temperatures as low as 0° F (-18° C).
- Comes with 20-foot power cord. UL and cUL listed.
- Operates at only 24 watts.
- Engineered for pond use.

keeping your pond clean

Filtration is an essential part of a healthy water garden, removing impurities from the water, helping to preserve aquatic life and enhance your enviornment. There are two basic filtration methods: biological and mechanical.

Mechanical filtration uses foam filters to physically trap dirt and debris. Pressure filters can accommodate larger ponds and come with the option of a built-in UV clarifier.

Biological filtration uses natural biological processes to improve the water. They create an environment for beneficial bacteria to colonize. This beneficial bacteria converts harmful ammonia from waste products into nitrates, which are relatively harmless to fish and beneficial to plants. The best pond filters offer a combination of mechanical and biological filtration.

ClearChoice™ Pressure Filters

For clear and healthy water

New from TetraPond! The remarkable ClearChoice pressure filter provides mechanical, biological and UV clarification — all in one rugged, efficient unit. Specially designed for maximum ease-of-use and convenience. Oversized latches enable easier opening and closing of lid when cleaning. Location of key features on top of unit allow easy access after pump is buried for concealment. Tough plastic material holds up underground. It's the ClearChoice for clear and healthy water.

Model	PRF-1500 (non-UV)	PRF-2500 (non-UV)	PRF-4000 (non-UV)	PUV-1500 (with UV clarifier)	PUV-2500 (with UV clarifier)	PUV-4000 (with UV clarifier)
Pond size	1500 gal.	2500 gal.	4000 gal.	1500 gal.	2500 gal.	4000 gal.
Height	16.5"	20"	23"	16.5"	20"	23"
Diameter	15"	15"	15"	15"	15"	15"
UV strength	–	–	–	9 watts	18 watts	18 watts

the little extras

Skimmer & Pond Nets

Use to skim leaves and debris off pond surface and to remove string algae. Deeper net is great for retrieving fish as well as leaves and debris.

Laborett Testing Kit

Kit tests for pH, nitrites (NO_2), general hardness (GH), carbonate hardness or alkalinity (KH) and ammonia (NH_3).

C l e a r C h o i c e

PF-1 ClearChoice Biofilter (for small ponds)
Cleans water gardens up to 1200 gallons.
Maximum flow, 500 gallons per hour

PF-2 ClearChoice Biofilter (for medium ponds)
Cleans water gardens up to 1800 gallons.
Maximum flow, 750 gallons per hour

PF-3 ClearChoice Biofilter (for larger ponds)
Cleans water gardens up to 2400 gallons.
Maximum flow, 1000 gallons per hour

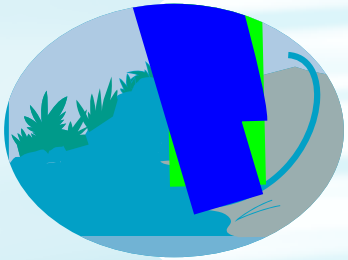
Intake — At the intake stage, the Trickle Flow spray bar disperses pond water slowly and evenly.

Mechanical filtration — Suspended debris is then removed by filter sponge pads during the mechanical filtration stage.

Biofiltration — For biofiltration, wate
trickles over Bio-Ring media, which pr
to thrive. There, the bacteria convert a
aerates water to enhance the bioactiv

[redacted]

Discharge and nitrate removal — During the discharge and nitrate removal stage, purified water is discharged to the pond where aquatic plants can remove nitrates.



Note: The discharge from Tetra biofilters can be routed to the waterfall pond or into the water stream. Because the water flows by gravity out the bottom of the biofilter, it must be positioned higher than the waterfall. If this is difficult to achieve, consider a flow control valve and a "Y" or "T" connector in your tubing or use the pump diverter, pumping a portion of the water to the biofilter and the rest to the waterfall. You may also want to use two separate pumps, one for the waterfall and one for the biofilter.

fighting green water

The most common complaint of new and experienced pond enthusiasts alike is green water. Green water is caused by blooms of single-celled algae, which not only cloud the water and obscure fish viewing, but also rob the water of valuable oxygen and release harmful pollutants. These organisms are so tiny, they pass through even the finest filter.

Aqua-Zyme®

Full-season water clarifier containing natural beneficial bacteria and enzymes that consume organic matter in the pond.

GreenFree™ UV Clarifiers

TetraPond's dependable clarifiers use ultraviolet light to destroy the reproductive ability of suspended algae. Dead algae will clump together into particles large enough to be removed by filtration, leaving the pond cleaner and clearer. GreenFree Clarifiers usually remove heavy algae blooms within five days and keep the pond algae-free. They are easy to conceal, durable and install in minutes. For maximum operating efficiency, replace the UV bulb every spring, at the start of the pond season.

Model	UV Mini	UV 1	UV 2	UV 3
Max. flow gallons/hr.	330 gph	900 gph	2200 gph	4400 gph
Pond size	660 gal.	1800 gal.	4400 gal.	8800 gal.
Energy consumption	5 watts	9 watts	18 watts	36 watts

AquaRem®

Remedies cloudy and discolored water by clumping contaminants so they can be removed by the filter.

► feeding your fish

The vivid oranges, reds and whites of Koi and goldfish are the result of a complete and balanced diet. The right food ensures vibrant colors and proper body shape. Because Koi and goldfish do not have teeth or stomachs, easy digestibility is of prime importance. Highly digestible foods minimize waste, enabling filtration systems to operate more efficiently and keeping the pond ecosystem healthier.

Pond fish need the proper combination of protein, fats, fiber, minerals and vitamins. Too much or too little of any particular nutrient can have an adverse effect on both the health of the fish and the quality of the water.

Fish should be fed one to three times daily. Only feed as much as they will consume within five minutes.

► When the water temperature begins to drop below 50°F in the Fall, the fish's metabolism will slow. Switch to TetraPond's most digestible food, Spring & Fall Diet. Stop feeding entirely when the water temperature is less than 39°F. In the Spring, when water temperature is between 39°F and 50°F, resume feeding with Spring & Fall Diet. Above 50°F, use any of TetraPond's fish foods.

TetraPond food

TetraPond, the world's most popular fish food, is the result of expert research by our development teams dedicated to creating new formulas to provide pond fish with balanced nutrition. TetraPond Food Sticks have revolutionized the fish food industry with the Soft Sticks advantage: they're 100% food made with the highest quality ingredients and no filler, lightweight, and quickly soften on contact with water to ensure easy digestion. And because they float longer, you can enjoy watching your fish feed at the water's surface.

Pond Sticks

Premium nutrition for goldfish and Koi.
An ideal maintenance diet that provides nutrition for energy, longevity, and overall health.

Koi Vibrance™

Premium nutrition with natural color enhancers.
A highly nutritional diet that brings out vibrant reds and yellows on Koi and ornamental goldfish.

Variety Blend

Premium blend of 3 foods to enhance vitality.
Pond Sticks: an ideal, basic diet.
Koi Vibrance: enhances natural coloration.
Wheatgerm Sticks: for health and vitality.

Koi Growth

Premium high protein food for rapid fish growth.
A high protein diet containing essential amino acids that help younger fish grow.

Spring & Fall Diet

Wheatgerm transitions fish in and out of winter.
Wheatgerm's exceptional digestibility at low temperatures is very important since fish metabolism and the pond's ammonia-reducing biological activity are greatly diminished in colder months.

Flaked Fish Food

The primary meal for goldfish and small Koi.

fish identification & care

An almost endless variety of colorful fish can be kept in the garden pond to add interest and beauty. Proper planning will increase your chances for healthy fish. Simple precautions, such as testing water quality, neutralizing chlorine when adding water, and protecting against common diseases can assure your pond fish remain in optimum health.

AquaSafe®

Makes tap water safe for pond fish by neutralizing chlorine, chloramine and heavy metals as well as providing a protective colloid coating for fish.

DesaFin® & KoiVital®

DesaFin protects goldfish and Koi against infection by destroying harmful bacteria, parasites and fungus. while **KoiVital** replenishes vitamins and minerals, promotes greater vitality, circulation and reproductive activity.

shubunkin

Perfect for water gardens, the goldfish-shaped shubunkin features a stunning pale blue background with flecks of red, black and blue.

goldfish

A favorite from everyone's childhood, these larger, hardy goldfish do well in poorer water conditions. Known as good swimmers, despite their short fins. Many varieties to choose from.

koi

Prized world-over for their vivid coloration, striking patterns and longevity, Koi are actually the colored variety of the common carp. There are many colors, shapes and types to choose from.

Controlling algae: the hidden beauty of aquatic plants.

If your pond is built properly and you've maintained the right balance between plants, fish and scavengers, controlling algae problems isn't difficult. Algae problems in water gardens are usually the result of excess nutrients in the water. One simple way to control excess nutrients is with aquatic plants. Plants take nitrates from the water, which deprives the algae of the nutrients it needs to live. Surface plants also provide shade to the pond, further reducing algae.

AquaPlanters

Flexible planters made of Plantex fabric by DuPont® are very stable and form to the pond floor. Water and nutrients pass through to roots but roots are prevented from expanding through the planter.

Lily Gro™ Tablets

Fertilizer tablets maximize beauty, color and growth of lilies and other potted aquatic plants.

FloraFin®

Fertilizes floating and submerged pond plants without promoting algae growth.

water lillies

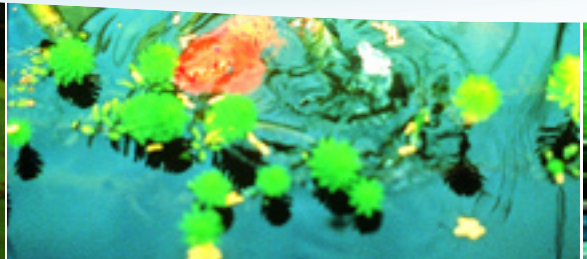
The lush, floating leaves of the vibrant lily sweep across the pond's surface, providing cover for fish and protection from the sun. To keep lilies healthy and enhance their elegance, submerge them at a depth of 18 inches and fertilize with Lily Gro tablets.

oxygenating plants

These submerged floating plants provide essential oxygen and act as a natural biological filter, benefiting the entire pond ecosystem. One bundle of oxygenators is recommended for every square foot of the pond's surface area. For maximum growth without promoting algae, fertilize oxygenators with FloraFin.

marginal plants

These attractive, hardy plants come in a myriad of sizes, shapes and colors. These plants benefit the pond by removing excess nutrients that could otherwise feed algae. Marginals grow best in shallow waters and should be submerged to a depth of 10 inches.



► educational resources from your water garden experts

As you continue in the hobby of water gardening, questions are bound to arise. Fortunately, Tetra provides a wide variety of resources to guide you in pond care and fish keeping.

- TetraPress offers a number of beautiful books full of inspiring photos and professional advice on water gardening.
- The TetraPond Web site at www.tetra-fish.com is packed with helpful information and advice.
- The TetraPond e-newsletter delivers useful tips, industry news, and new product information straight to your home.

Is it safe to use untreated tap water in my pond?

Probably not. Most tap water contains chlorine, chloramines and heavy metals that are harmful to fish. In order to make your tap water suitable for your pond, you need a water treatment like TetraPond AquaSafe, which neutralizes and/or removes dangerous additives and provides a protective colloid coating for the fish.

How do I get rid of green water in my pond?

There are a number of ways to deal with green water. Most involve denying algae the sunlight and/or nutrients they need to survive.

- Shade as much of the water as possible with lilies and other aquatic plants. Floating plants prevent sunlight from feeding the algae.
- All aquatic plants absorb nutrients from the water that would otherwise be used by algae.
- Feed your plants only as directed. Fertilizer tablets can be inserted into the soil so the fertilizer is absorbed by the plant roots with very little released into the water for algae to consume.
- Use clarifying water treatments like Aqua-Zyme and AquaRem.
- Add a UV clarifier. Exposure to the correct wavelengths of UV light disrupts the reproductive capability of single-cell algae. Once it dies and clumps together, the external filter can remove it.

How often should I clean my filter?

At the first sight of reduced water flow. If your pump has a pre-filter, check to see if it's clogged and clean it. Rinse your biofilter sponges, mats or filter pads thoroughly with pond water. Consult your biofilter user guide for more details.

What do I do with my pond during the winter?

In most parts of the U.S., it is best to leave your fish in the pond during the winter, providing the depth of the pond is adequate. Ice will form on the top, but the water underneath will not freeze.

At first frost, simply disconnect the filtering equipment and the UV clarifier. Stop feeding your fish when the water temperature falls below 39°F.

Always provide an opening in the ice to allow for gas exchange. Without this hole, toxic ammonia can build up. To maintain an ice-free hole, leave the pump operating with the fountain head and tubing removed. The pump should be positioned so the discharge keeps water moving at the surface. Electric pond de-icers, like our energy-efficient Winter Island, will also achieve this. Do not break holes in the ice, since this will send shock waves that can injure or kill the fish.

In the spring, when the water temperature reaches 39°F, resume feeding with TetraPond Spring & Fall Diet, but only after you have re-established filtration. When water temperature reaches 50°F, you can use any of TetraPond's fish foods. Begin feeding two weeks after you have re-established filtration.

Is there anything I can do to ease maintenance chores?

Of course your pond will require some attention throughout the year, but there are some simple steps you can take to reduce the amount of time spent on maintenance.

- Purchase a filter that is large enough to do the job. Over-filtration is not harmful, but under-filtration will lead to poor water quality, extra work and frustration.
- Choose an external filter like a ClearChoice Pressure or Gravity Flow Biofilter. External filters are easier to maintain because you do not have to enter the pond to clean the foam pads.
- A clean pond starts at the surface. Make sure you have a skimmer net to remove leaves and debris from the pond.
- Pond netting prevents leaves and debris from reaching the pond surface and protects fish from predators.
- Using the OFX pump to remove debris from the pond without clogging will significantly reduce pump maintenance.
- UV clarifiers work continuously to keep your pond free of algae without repeated application of chemical or biological treatments.

Look for the TetraPond Water Gardening Center featuring our complete line of pond products. To locate the TetraPond retailer nearest you, call 1-800-526-0650, or visit our web site at www.tetra-fish.com.

TetraPond®

Your Water Garden Experts

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